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ABSTRACT

The paper reviews essential characteristics of instructional materials designed for vocational training of handicapped students, and describes components of the instructional format. Material characteristics (such as flexibility and low reading level) are matched with specific learning characteristics of special needs students. Discussed are the development and use of the Mini Activity Packet (MAP), a small, flexible, independent unit of instruction which includes objectives, information sheets, activities, and review questions. A sample MAP on wrapping a package is provided. (CL)

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The Development of Instructional Materials for Special Needs Students

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The Development of Instructional Materials for Special Needs Students

A major goal of education is to provide students with the vocational skills needed to succeed in the work place. This goal is no less essential in the case of special needs students: through vocational programs they can learn the skills and attitudes necessary to become productive, contributing members of society. Through vocational programs, special needs students also can experience, perhaps for the first time, the feeling of successfully contributing to productive enterprise, a fact that in itself may add greatly to the development of self-confidence, maturity and personal fulfillment.

There are, however, at least two obstacles encountered when attempting to develop vocational programs for special needs students. First, many teachers do not have the necessary background to deal with a wide number of occupational areas. Consequently, they cannot provide vocational instruction other than on a limited basis. Secondly, while resource materials can help to overcome this problem, few good occupationally related materials are available for use with special needs students. In most cases, the material is designed for "regular" students and is not suitable for special needs students. In other cases, the resources appear to be revised elementary-level materials, and this material is equally unsuited for use with special needs students. It was because of the need for better occupationally related, secondary-level instructional materials that the projects at the University of Maryland were initiated.

During the past four years, a number of instructional materials projects have been underway. The purpose of this paper is to describe these projects. More specifically, the following will be briefly examined:

1) the characteristics built into the instructional materials.
2) the developmental process.
3) the types of material developed.

Material Characteristics

As previously suggested, instructional materials on the market for "regular" students often cannot be used successfully with special needs students. The special needs teacher must deal with a wide ranging student group in terms of ability level, background, learning style, motivation and interest. The target group of "regular" materials is often too narrowly defined. Moreover, the reading level, format and content of "regular" materials often precludes the use of such materials with special needs students. What is needed, then, is material that takes into account the characteristics of special needs learners and that is flexible enough to be used in a variety of instructional situations.

Of primary concern in the development of instructional materials for special needs students is that the materials be flexible. Flexibility is an instructional prerequisite if the materials are to be effective with students characterized by different types and degrees of handicaps and learning problems. And, flexibility is necessary to accommodate a variety of learning situations as well as a variety of teaching styles.

In the design of the University of Maryland materials, a number of characteristics were built into the materials to provide optimum flexibility. The material is designed for use by either teachers or students. The materials can provide direct, written instruction to students with at least a sixth grade reading level. Or, the materials can be used by the teacher to provide resource information and serve as the basis for a lesson. Furthermore, the material is appropriate for either group or individual use, depending on the needs of the students. Most important is that the instructional components themselves provide for flexible use. They are organized and presented in such a way as to provide for varying student skill levels. Finally, small independent units were created allowing flexible sequencing according to vocational need. In sum, the flexibility built into the materials allows for a variety of uses, and accommodates differing learner styles, teaching approaches and employment needs.

While flexibility is an essential feature of instructional materials, it is also important to develop materials that take into account specific learner characteristics. While no single instructional approach will be effective with all special needs students, there are a number of instructional design features from which these students can benefit. The following list identifies characteristics which may describe special needs learners, along with the design features which were incorporated into the University of Maryland materials in order to accomodate these characteristics.

Learner Characteristics	Students differ in terms of learning style.

Material Characteristics	Instructional modes varied through a number of activities.
	Designed to provide maximum flexibility.
Learner Characteristics	Poor attention span and lack of motivation.
Material Characteristics	Attractive format, cartoon type visuals to arouse interest.
	Material designed to keep the interest of the student.
	Instructional units are kept small, with opportunity for frequent feedback, correction and review.
	Material characterized by built-in requests for responding, summarizing, explaining and other techniques requiring active participation on the part of the learner.
Learner Characteristics	The rate and capacity of mental processing is limited.
Material Characteristics	Content presented in small steps.
	Content presented at a pace slow enough to be processed by students.
	Repetition, review and opportunity for practice provided.
Learner Characteristics	Student experiences difficulty reading and using language.
Material Characteristics	Reading level kept as low as possible without sacrificing technical information.
	Simplified vocabulary.
	Visuals included to supplement written content.

Learner Characteristics	Student experiences difficulty identifying the organizing structure or patterns inherent in content.
Material Characteristics	Rationale provided, giving overview of packets, explaining relevancy of content and alerting student to what follows.
	Advanced organizers, cues and guide points provided in order to direct attention to content that the learner needs to attend to.
	Content presented in a structured, logical step-by-step manner.
	Major divisions of content clearly identified.
	Review, summarization and questions included.

The above design features can increase the effectiveness of instructional materials for special needs learners. And, these characteristics can be built into the materials regardless of the format of those materials.

Instructional Format

The instructional format, in fact, can vary greatly. Learning activity packages, slide/tape presentations, contracts, assignment sheets, and other forms of instructional materials are effective instructional formats if they are developed in such a way as to accommodate the diverse characteristics of special needs students. However, the most effective format developed by the University of Maryland projects is the Mini Activity Packet (MAP).

MAPs are small, independent, flexible units of instruction designed for use in teaching vocational skills to special needs students. These packets incorporate the characteristics described

above which serve to accommodate special needs learners. The flexibility of the MAPs, along with the inclusion of relevant instructional characteristics combine to fulfill the requirements of good instructional materials for special needs students.

The MAP is a short (five to seven pages) product designed to teach a specific occupational task. A series of MAPs can be used as the basis for teaching a variety of entry-level tasks in one occupational area.

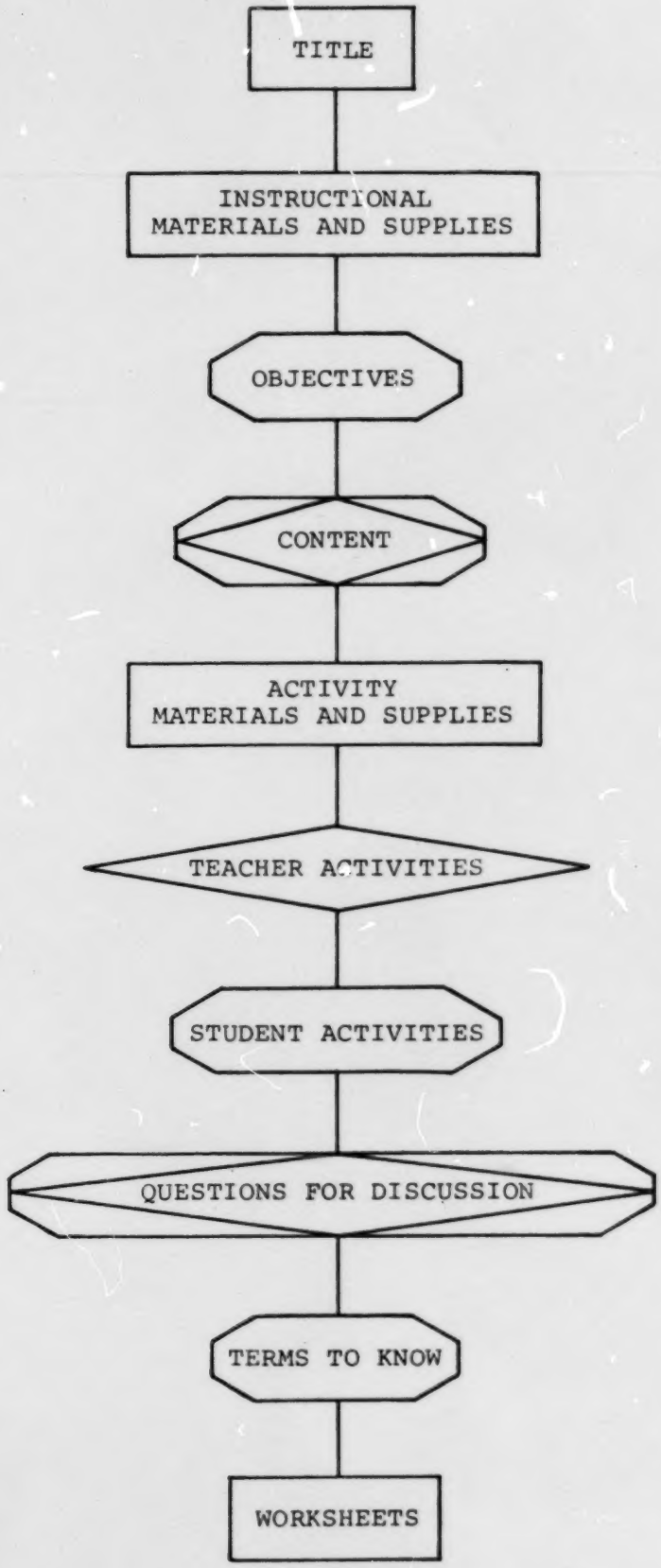
The MAP is comprised of components which are familiar to many educators: objectives, information sheets, activities and review questions. These have been organized to provide for flexible and convenient use. And, while primarily designed for teacher use, the MAP can be used independently by students with at least a sixth grade reading level.

The components of the MAP are presented in Figure 1. The title identifies the specific task covered. Following the title is a list of material and supplies which may be used to supplement instruction.

Objectives are statements of the observable performance that is expected of the student upon completion of the MAP. These objectives form the foundation on which the remainder of the MAP is structured.

The content is, of course, the material to be covered. The content provides the information necessary in order to attain the objectives. This section can serve two purposes: 1) to provide students with direct instruction or 2) to serve as a resource for teachers who may not be familiar with the area. Care is taken in

Figure 1
PACKET FORMAT



the development process to insure that the content is written clearly, concisely and in enough detail to benefit special needs students.

Following the content are the teacher activities and student activities. Both teacher and student activities correlate with the objectives and content. Teacher activities are suggested ways in which the teacher can expand upon the content, reinforce the content and further facilitate attainment of the objectives. Student activities provide students with a means of mastering the content with a minimum of teacher direction. The activities are diverse: they incorporate a number of instructional modes, and can accommodate varying student skill levels. The number and variety of activities allows the teacher to select those activities most appropriate for a particular student.

Question for discussion are provided as suggestions for teachers who wish to involve students in a discussion of the material. These questions, like the activities, correlate with the objectives and the content information. In some cases, discussion questions are included which allow the class to go beyond the content. The variety of questions allows the teacher to select those which are most appropriate for his or her situation.

The terms to know section includes a list of key words found in the content. The teacher can use this list as the basis of a vocabulary lesson, a spelling lesson, or as a topic for discussion.

Each MAP includes drawings to supplement instruction and worksheets necessary to complete the activities. These instructional aids can be found after the words to know, at the end of the MAP. Following is an example of a MAP:

CLERICAL AND OFFICE SKILLS:

TEACHING SPECIAL NEEDS STUDENTS

Wrapping a Package

Mini Activity Packet Number Nineteen

Project Directors: Dennis R. Herschbach and Marcia D. Smith

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This project was funded by the Maryland State Department of Education, Division of Vocational-Technical Education.

Wrapping a Package

The following materials may be used to supplement instruction: cardboard box, newspaper, packing tape, padding, twine, heavy wrapping paper, masking tape, ink pen, three different items for packing.

OBJECTIVES

The student who completes this unit will be able to:

1) Describe how items should be placed, wrapped, and padded inside a box.
2) Describe how a box should be closed, taped, wrapped, and tied.
3) Describe how to address a package.

Sam and Stella both work in the office of Hillendale Manufacturing Company. One day, their supervisor asked them each to wrap a box containing office supplies and send it in the mail. Sam just put the supplies in a box and tied a string around the box. When the package was sent in the mail, all the supplies were damaged. Stella, however, was more careful. She wrapped each item before putting it in the box and then put padding in the box. The box was then taped, wrapped in paper, and tied with twine. When the package was sent in the mail, all the supplies arrived safely.

Wrapping packages must be done very carefully. Otherwise, the items inside could break. The office worker must know what supplies to use and what steps to follow for wrapping a package. The steps are as follows:

Step 1: Choose a Box

A box that is used for mailing a package must be strong. It cannot fall apart in the mail. Heavy cardboard boxes are usually used. If the items in the package are heavy, then the box must be very strong.

A box must be the right size, too. A box should be able to hold all the items to be mailed and some padding. The padding is used to keep the items from breaking. If the box is too big, the items will move around in the box. Then they might break. If the box is too small, it will not close properly.

Step 2: Wrap Each Item

The office worker must get each item ready to put in the box. Each item is wrapped with either newspaper or cushioned paper. Then, a piece of masking tape is used to hold the paper.

Items that are breakable need more wrapping than nonbreakable items. For example, a bottle of ink would need three layers of wrapping. A box of envelopes would just need one layer.

Now, the office worker is ready to pack the box.

Step 3: Pack the Box

Just wrapping each item in paper is not enough. The items still may break if the box is not packed right.

All items should be placed securely in the box. If there are different sizes and weights of items, the larger, heavier ones must go on the bottom. For example, a heavy stack of typing paper would be placed underneath a small box of paper clips.

When all the items are put in the box, there will be extra space left over. This space must be filled with padding. The

padding may be rolled-up newspaper or small pieces of styrofoam. After the padding is put in, there should be no space for the items to move around.

The office worker should make a list of every item that is in the box. The list tells the person who gets the package what should be inside. This list is put inside the package on top of the items and the padding.

Step 4: Close and Tape the Box

Now the office worker is ready to close and tape the box.

First, the box flaps are folded over the top of the box. Then, packing tape is put on each seam of the box.

There are two kinds of packing tape that may be used: paper or plastic. Paper tape has one side that is shiny. If the office worker presses a wet sponge on the shiny side, it becomes sticky. The sticky side is pressed against the seam of the box. Reinforced plastic tape is stronger than paper tape. It is already sticky on one side of the tape. A wet sponge is not needed to make the tape sticky. The office worker just presses the sticky side of the tape on the seam of the box. No matter which kind of tape is used, the box is still closed and taped the same way.

Step 5: Wrap the Box in Paper

The office worker next puts heavy wrapping paper around the box. This paper is like the paper used for grocery bags. It helps to protect the box and everything in it.

The office worker cuts a piece of paper that will fit all around the box. Then, the box is placed in the center of the paper. The paper is pulled around two sides of the box and over the top.

Where the paper meets at the top of the box, the office worker tapes the paper. Then, the paper at each end of the box is neatly folded and taped. The same tape used to tape the box seams is used to tape the paper.

Step 6: Tie the Box

Strong twine is used to tie the box. String is not strong enough to use. The office worker loops the twine around the box. The office worker makes sure the twine is looped around each side of the box. A knot should be tied each time the twine passes over another piece of twine.

Step 7: Address the Package

The office worker must next put addresses on the package. The addresses tell the letter carrier who the package is for and who sent the package. The words "To" and "From" are usually written in front of the addresses.

The office worker writes the addresses on the wrapping paper on top of the package. It is also a good idea to write the addresses on the top of the box before it is wrapped in paper. If the paper should be torn off in the mail, the letter carrier can read the addresses on the box.

An office worker should use an ink pen to write the addresses. Ink does not smear and cannot be erased. The addresses should be written big enough to be read two feet away.

On the following page is an example of how the addresses should look:

FROM: BROWN COMPANY
111 MAIN STREET
CHICAGO, ILLINOIS
44022

TO: ED ADAMS
222 OAK STREET
DALLAS, TEXAS 66021

When all of the steps are done, the package is ready to mail. Wrapping a package the right way takes time. However, when a package is wrapped correctly, things do not get broken or lost as easily.

The following materials are needed to complete the activities: cardboard box, newspaper, masking tape, packing tape, padding, twine, heavy wrapping paper, scissors, three different items (breakable and nonbreakable) for packing (must be obtained); student worksheet (provided).

TEACHER ACTIVITIES

1) Display the supplies needed to wrap a package (newspaper, cardboard box, masking tape, heavy wrapping paper, paper or plastic tape, twine, ink pen, scissors). Discuss how each is used.
2) Demonstrate how to prepare a package to be mailed. Show how to: choose a box, wrap each item, pack the box, close and tape the box, wrap the box, tie the box, and address the box.
3) Demonstrate how breakables (ink bottles, staplers, etc.) may require more individual wrapping and padding than nonbreakables.

4) Show how heavier, larger items should always be placed on the bottom.

5) Invite a letter carrier to the class to demonstrate how to prepare packages for the mail. Ask the letter carrier to bring pamphlets for each student about how to wrap a package.

STUDENT ACTIVITIES

1) At your desk, collect all the supplies needed to wrap a package. Have your teacher check to see if all the supplies are there.

2) After watching a demonstration, wrap three items for mailing and pack them in a box with padding. Have your teacher check your work. Discuss how you can improve.

3) After watching a demonstration, close, tape, wrap, tie, and address a package for mailing. Have your teacher check your work. Discuss how you can improve.

4) What is wrong with each package? Obtain a worksheet from your teacher with pictures of boxes. Tell what is wrong with each picture.

QUESTIONS FOR DISCUSSION

1) Why is it important to carefully wrap items that are to be mailed?

2) Why do breakable objects require more wrapping than non-breakables?

3) Why should heavy, large items always be packed on the bottom?

4) How should you decide what box to use?

5) Why is padding used?

6) How are items packed in a box?

7) What are two kinds of packing tape?

8) How is the box wrapped with paper?

9) What are the two addresses that must be written on a package?

10) Why should the addresses be put on both the wrapping and on the box underneath?

TERMS TO KNOW

seam--where two pieces of a box or paper meet

reinforced--extra strong

to protect--to keep from being hurt

to smear--to run or become unreadable

address--the name, street, and city of the person who either sends the package or receives the package

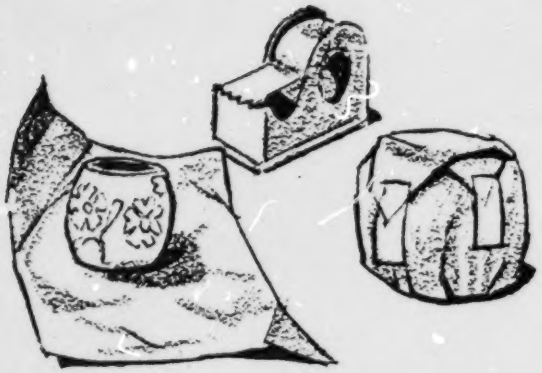
breakable--an item that can easily be broken

nonbreakable--an item that doesn't break easily

packing tape--tape used to close and seal a package

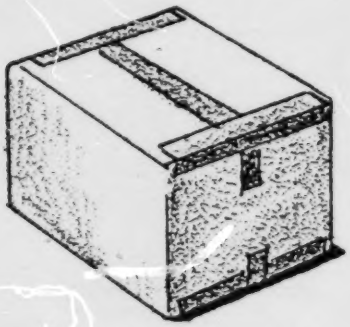
WRAPPING A PACKAGE

1. WRAP EACH ITEM INDIVIDUALLY

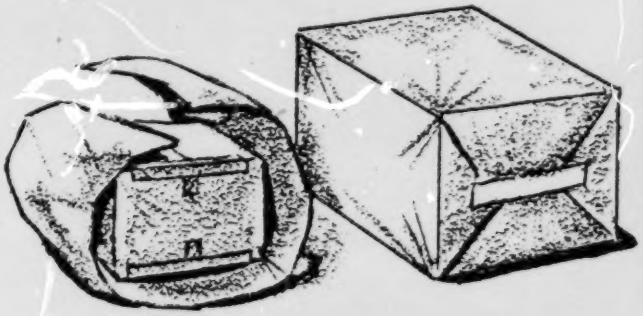


2. PADDING ITEMS IN THE BOX

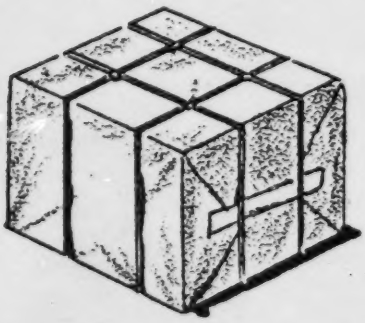
3. TAPE THE BOX



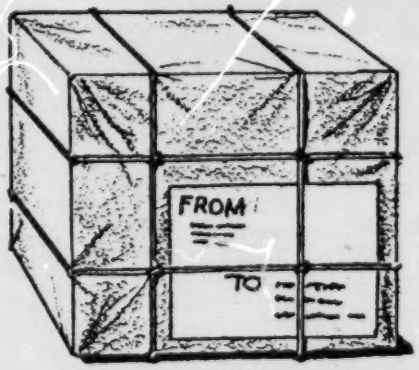
4. WRAP THE BOX IN PAPER



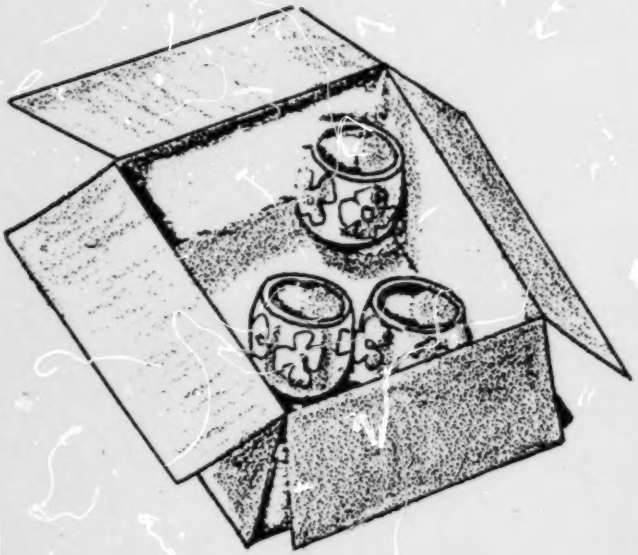
5. TIE BOX WITH TWINE

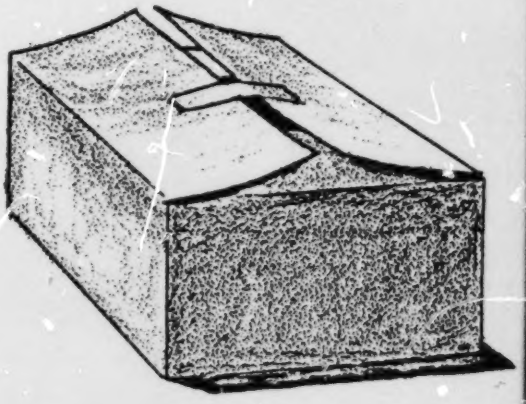


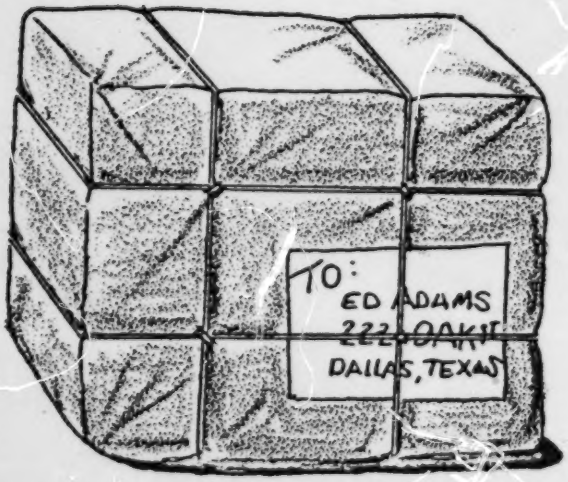
6. ADDRESS THE PACKAGE



WHAT'S WRONG WITH EACH PACKAGE?







The Development Process

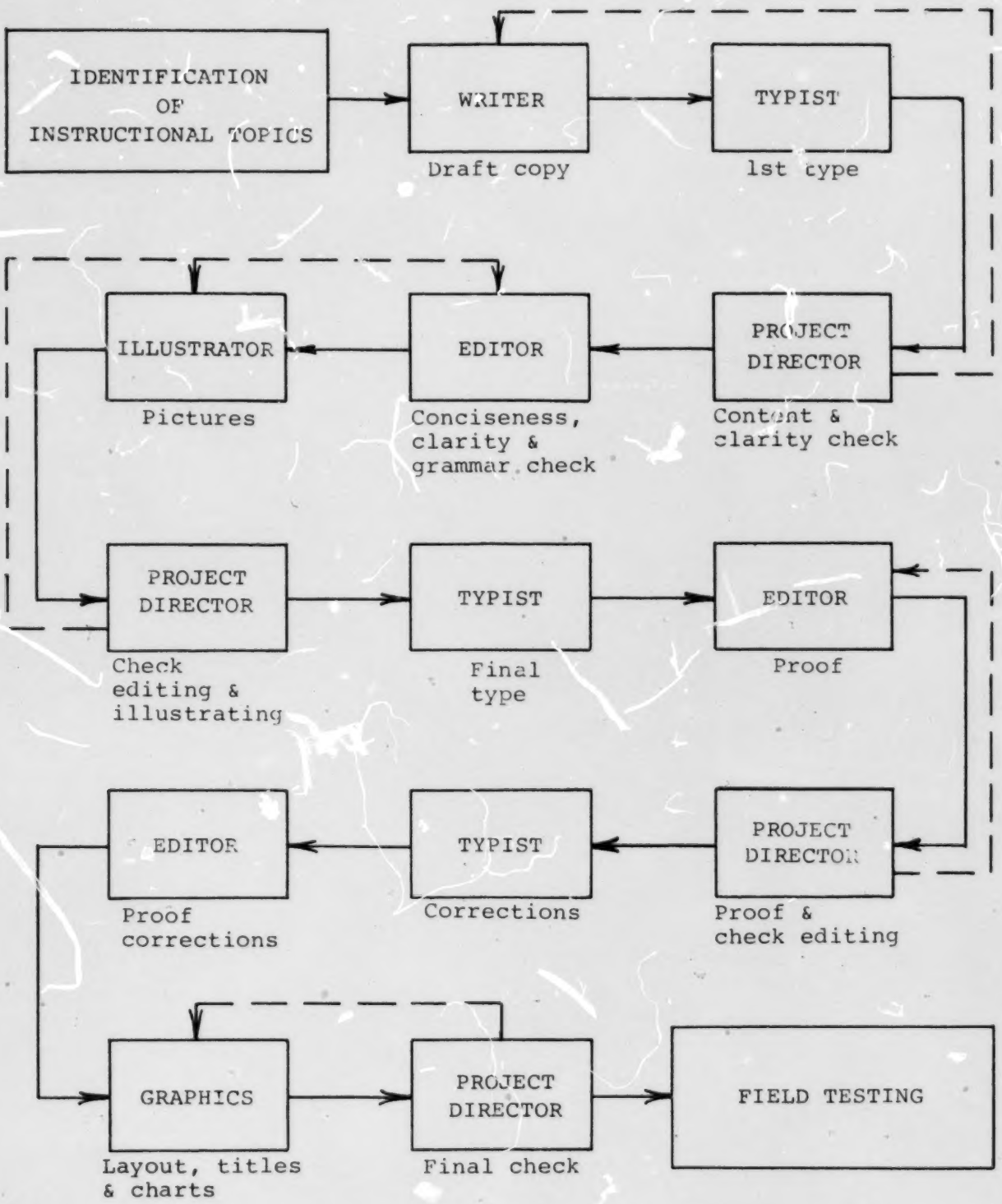
The production of MAPs, as well as any quality instructional materials requires a structured, systematic development process. This process must utilize individuals with a diversity of talent and provide a means of coordinating these diverse contributions to yield the desired instructional product. And, a method of quality control must be included which guarantees the effectiveness of the product. A development process which has proven to be effective and efficient utilizes a team approach, with each member of the team fulfilling a unique function in a specified order.

The team consists of five persons who work independently under the direction of a project director. The team is comprised of a technical writer who has primary responsibility for the technical content; an editor who is concerned with clarity, conciseness and grammar; an illustrator who is responsible for artwork; an individual who can prepare the layout and copy; and a typist. On the periphery of the process, but making a major contribution are teachers. Consultation with teachers helps determine topics to be covered, format, and usefulness of the completed product.

No less important than a production team is a structured approach to coordinating the efforts of the team. Consistency in terms of format and quality demands a reliable process through which each product progresses. Such a process allows each team member to contribute to each product in a systematic manner. Figure 2 illustrates a process which provides this consistency and structure.

Figure 2

DEVELOPMENT PROCESS



Instructional Products

The process described above has proved suitable for the production of several kinds of instructional materials for special needs students. The MAPs, as described earlier, are those most uniquely suited to special needs learners. A series of twenty MAPs have been developed in the area of food service. This series includes MAPs which cover such topics as: Preventing Machine Injuries, Making Sandwiches and The Cafeteria Server. A second series of forty MAPs has been produced which deals with topics relevant to office and clerical occupations. Sample titles from this series are: Making Local Calls, Stapling, Collating, and Stuffing Envelopes.

Other types of materials have also been produced by the development process established at the University of Maryland, including slide-tape shows and learning activity packets. For information on obtaining any of these materials, contact:

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